Thermal Characterization of Cu/CoFe Giant Magnetoresistive Multilayer

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Advanced thin-film growth technology has made it possible to arrange different materials at the atomic level and to fabricate thin-film structures with strong quantum effects. The physical properties of these quantum structures (QSs) are fundamentally different from their bulk counterparts and have not been measured previously. Our current research effort is directed at thermal characterization and modeling of (Cu/CoFe)*n* multilayers with *n* between 10 and 40 repeated bi-layers. These layers are widely used in data storage applications such as giant magnetoresistive (GMR) and Magnetic Random Access Memory (MRAM) technologies. The in-plane thermal conductivity is measured using the steady state and 3ω techniques at room temperature.